AIMS POWER™

Battery Regulator Manual

LFP12V100AREG | LFP12V200AREG

Alternator Charging Protection | Solid-State | 100A

The AIMS Power 12V Battery Voltage Regulator is specifically engineered to safely charge lithium batteries from an alternator. Using advanced solid-state technology, this regulator automatically disconnects a 12V DC power source when voltage moves outside the safe operating range, preventing overcharging and protecting lithium battery banks from damage. It is most commonly used in heavy duty applications where high output alternators, paired with large battery banks and extended drive times can stress lithium batteries. This regulator will allow charge to larger battery (s). No time limits.

Designed for Lithium Batteries + Alternators

Standard alternators are not designed specifically for lithium battery charging. Without proper voltage control, they can overcharge lithium batteries, reduce lifespan, or trigger BMS shutdown. This regulator continuously monitors alternator output and automatically controls charging voltage to protect lithium batteries during operation. It consistently regulates charging whether the vehicle is running for 1 hour or 20 hours, maintaining stable voltage protection throughout short trips or extended drive cycles.

Ideal for:

Work trucks
Commercial food trucks
Fleet vehicles
Service vehicles
RV lithium upgrades
Overland builds
Any system using a high-output alternator and lithium battery bank

How It Works

The regulator continuously monitors incoming DC voltage from the alternator (starting battery) or other 12V charging source. It protects from high voltage and current spikes from the charging source.

• Supplies power within 9.4 – 14.4V
• Disconnects output below 9.2V or above 14.6V disconnects lithium battery from alternator (starting battery) or other power source
• Automatically resets when voltage stabilizes automatically reconnects lithium battery and starting battery or other power source
• Protects lithium and mixed battery chemistries
• Prevents overcharging from high-output alternators or other power source no time limits therefore, able to charge large battery banks
• Protects lithium batteries from high voltage and current spikes of charging source

Automatic Reset:
Once voltage returns to the safe 9.4–14.4V range, the regulator automatically resets after a 2-minute delay and resumes normal operation.

Why This Regulator Matters for Lithium Systems

Lithium batteries are a significant investment. Improper alternator charging is one of the leading causes of premature failure.

Prevents lithium overcharging
Protects against unsafe voltage conditions
Supports continuous-duty charging
Extends lithium battery lifespan
Enables safe lithium upgrades in heavy-duty vehicles

Specification	LFP12V100AREG	LFP12V200AREG
	100Amp	200Amp
Voltage Input	9.4-14.4Vdc	
Output Operation	Input Voltage: 9.4-14.4Vdc Output On	
	Input Voltage < :9.2Vdc Input Voltage > :14.6Vdc Output Off	
Over Current Shutdown:		
Current > than 100A/200A and < than 125A/250A, the relay is disconnected after 1 minute.		
Current > than 125A/250A and < than 150A/300A, relay is disconnected after 10 seconds.		
Current > than 150A/300A, the relay is disconnected immediately.		
* Once the current is within operating range, the regulator will reset after 2 minutes resuming normal operation.		
Weight	1 lb	1.7 lb
Dimensions L*W*H	5.75” x 4.75” x 2.125”	7.825” x 4.75” x 2.125”

Installation Tips

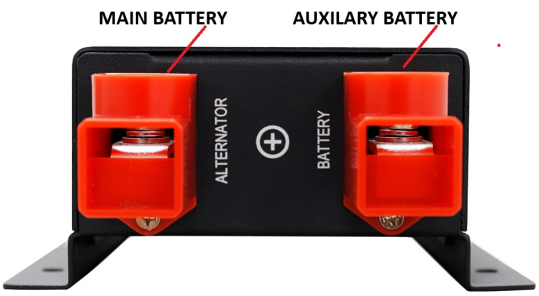
- The regulator should be installed by a person trained and skilled in vehicle electrical systems.
- The installation should comply with SAE and the vehicle manufacturer’s electrical wiring procedures.
- The regulator should be installed inside of the vehicle, in a dry and protected environment.
- Cable size should be rated for 100 or 200 amps depending on model of regulator.
- Do not connect loads to the output that will exceed the output current rating of the regulator (100 or 200 amps depending on model).
- We recommend using female blade terminals that connect to the terminals on the regulator. Be sure to properly crimp these terminals. Do not solder wires directly to the regulator’s terminals.
- Install fuse as close as possible to the power source on positive lead.

Connect the main battery positive lead to the regulator port labeled “Alternator.” **Note:** Although labeled “Alternator,” this connection is for the main battery, do not connect directly to the alternator.

Connect the auxiliary battery positive lead to the port labeled “Battery.”

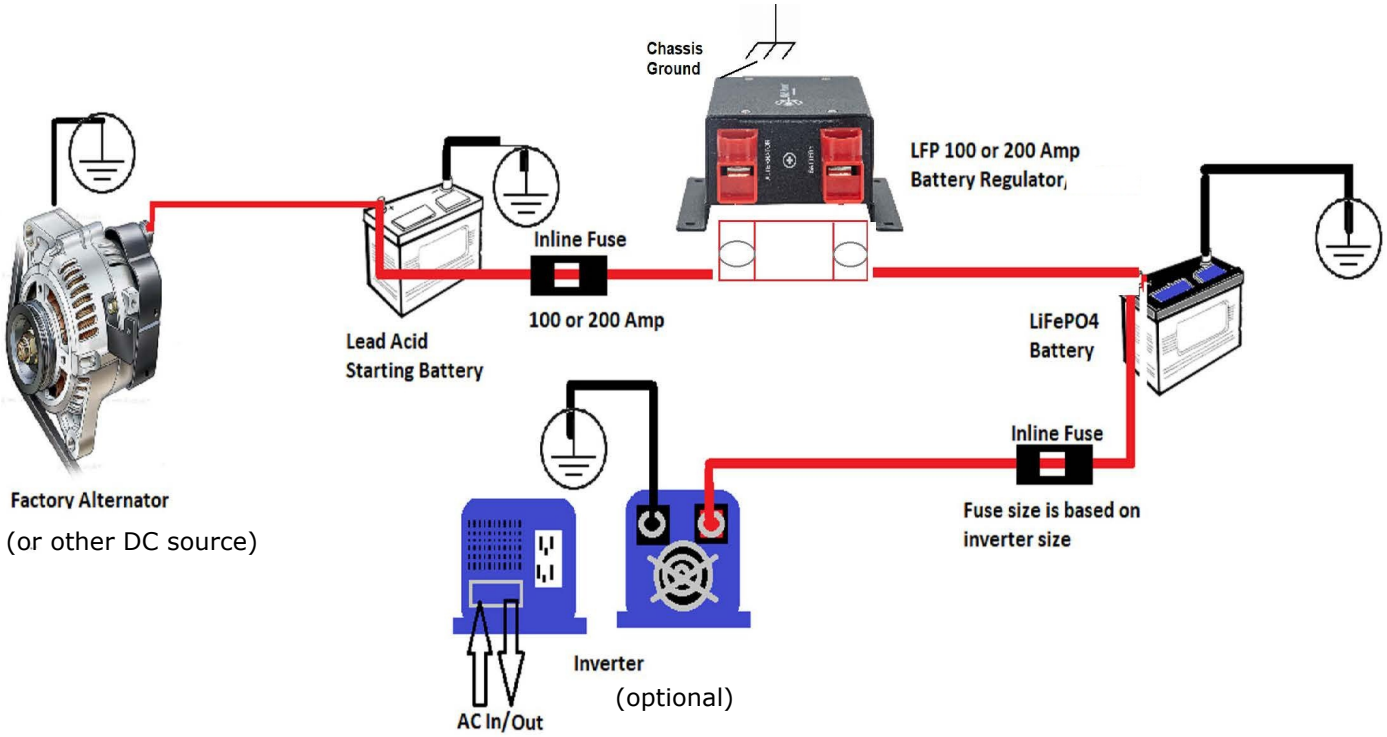
We recommend fusing all connections. See diagram for reference.

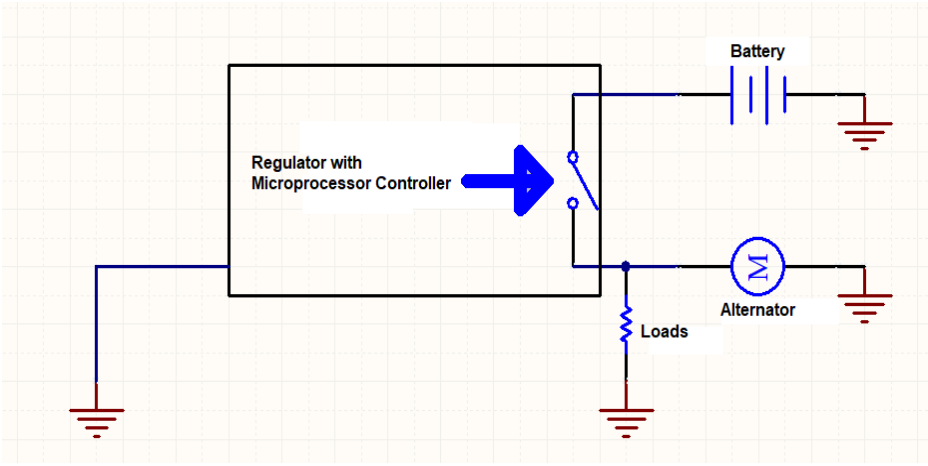
Use 6 AWG wire for the chassis ground.



AIMS POWER HAS FUSES AND CABLES.
WWW.AIMSCORP.NET

DIAGRAMS





WARRANTY
Return shipping costs for warranty service or exchanges are the responsibility of the customer. If the product is approved for warranty coverage, AIMS Power™ will cover the cost of shipping the repaired or replacement item back to the customer within the 48 contiguous states. This product is backed by a 3 year warranty and lifetime tech support.

Warranty Exclusions

This warranty does not cover:

Products determined by AIMS Power™ to be free of material or workmanship defects
Excessive wear, misuse, improper installation, lightning damage, or altered products
Missing or defaced labels, stickers, serial numbers, or identifying information
Improper care or storage (including water damage or exposure to extreme temperatures)
Products that have been tampered with, altered or customized
Secondhand purchases or products purchased from unauthorized sellers

Warranty Return Process

It is our goal at AIMS Power™ to provide a comprehensive and hassle-free return and exchange process. As such, please review the below process before initiating warranty claim.

Contact AIMS Power™ via the AIMS Power return portal at https://aimspower.returnsportal.net/ to submit your warranty return request and obtain a Return Merchandise Authorization (RMA) number.
Note: Be sure to provide the name from the original order as well as a copy of your receipt. Include a detailed description of the problem.

An automated email will then be sent to the address indicated on the warranty return request containing further instructions regarding packing, shipping and documentation to include when returning the product as well as an RMA authorization number.